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ORIGINAL COMMUNICATIONS.

ON THE PHYSIOLOGICAL ACTION OF CHAMÆLIRIN.

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IN a paper by the writer on the subject of the glucoside chamælrin, the bitter principle of the *Chamælririum luteum*, Gray, read at the pharmaceutical meeting of the Philadelphia College of Pharmacy, April 16, 1878, and afterwards published in the May number (p. 250) of the *American Journal of Pharmacy*, before giving the results of the chemical investigation of the root of this plant, brief reference was made to what was known in regard to its therapeutic action. As there stated, although the recorded testimony in regard to the efficacy of this root in the treatment of a certain class of diseases is not very extensive, still it is of such a character as to render it important that further investigations should be made to establish or disprove its claims as a curative agent of considerable value. The United States Dispensatory devotes a few lines to the *Chamælririum luteum*, describing it botanically under its old name of *Helonias dioica*, and stating that it had been found useful in colic, and in the treatment of leucorrhœa and atony of the uterus. In King's American Dispensatory, the author, after giving a detailed description of the plant, states that its root possesses the properties of a tonic, diuretic, and anthelmintic. In excessive doses it is said to produce emesis, and when used in the fresh state is mentioned as acting as a sialagogue. The reputed action of this root as a uterine tonic is, however, the most interesting and important point claimed by Dr. King and other "eclectic" practitioners, as, in consequence of this supposed property of removing abnormal conditions and imparting tone to the reproductive organs, it has been somewhat extensively used in the treatment of leucorrhœa, amenorrhœa, and dysmenorrhœa, and likewise with a view of correcting the tendency to repeated miscarriage. The results obtained from the use of this agent by Dr. Braman (*Boston Med. and Surg. Jour.*, xi. 416), and the testimony still more recently ad-

duced by E. H. Woodbury, M.D. (*Southern Medical Record*), who reports most favorably as to its value in the treatment of leucorrhœa, amenorrhœa, and dysmenorrhœa, certainly tend strongly to prove that the conclusions previously arrived at were correct, and that the chamælririum does really act as a uterine tonic.

As no chemical investigation of the chamælririum luteum had been made, and as we therefore possessed no knowledge of the principle or principles producing the observed effects on the economy, an inquiry in this direction seemed desirable, as being likely not only to afford a clue to the therapeutic action of the drug, but likewise to establish whether the plant itself was as closely allied chemically, as botanically, to the veratrums, with which it had been originally classed by Linnæus, under the name of the *V. luteum*.

From the article referred to above, and a second paper on the same subject, published in the *American Journal of Pharmacy*, October, 1878, p. 465, it will be seen that the result of my chemical investigation of the chamælririum root was the extraction, in a pure state, of a very bitter, white substance, of a resinous appearance, which proved to be a glucoside, and for which I proposed the name *chamælrin*, to distinguish it from helonin, which, although styled by the "eclectics" a neutral substance, is merely, according to King, a "hydro-alcoholic extract" of the *helonias dioica*. In addition to chamælrin, a free acid, a fatty acid, glucose, starch, and tannic acid, giving a greenish precipitate, with per-salts of iron, were incidentally recognized as being present in the chamælririum root. No indications were afforded at any time during the various experiments that it contained an alkaloid.

The following is a brief outline of the method adopted in extracting the chamælrin. The powdered chamælririum root was exhausted with distilled water, the filtered solution evaporated on a water-bath to one-half its bulk, calcined magnesia added, and the evaporation continued until the mass was thoroughly dry, when it was powdered and extracted, first with ether and then with hot absolute alcohol. The alcoholic solution was then evaporated to dryness, the residue, a resinous mass, of a light yellow color, dissolved in distilled water, purified animal charcoal

added, the mixture, after violent agitation, evaporated to dryness, and the dried mass extracted with hot absolute alcohol. The alcohol was then driven off, leaving the chamælin in a state of purity.

As thus prepared, chamælin is a light, very bitter substance, somewhat resinous in appearance, and of a white color. It can be readily reduced to a powder, which adheres to the fingers after the manner of a resin. It is freely soluble in hot and cold water and alcohol, very sparingly soluble in ether, and quite insoluble in chloroform, benzene, benzole, and bisulphide of carbon. When a minute quantity of it is brought in contact with a few drops of concentrated sulphuric acid there is a play of colors from an orange to crimson, followed by a brown, changing to a rich green, passing to a purple, which fades away, leaving a dark green, insoluble mass in the centre of a colorless liquid. With Fröhde's reagent no play of colors is produced, but it dissolves in it with a yellowish-brown color. It dissolves in nitric acid, forming a clear canary-yellow solution, which does not change on standing. Hydrochloric acid also dissolves it, the solution gradually assuming a rich wine- or peach-red color. This color reaction, which is characteristic of chamælin, is best observed by adding a considerable quantity of the acid to a small portion of the substance contained in a test-tube. A solution of chamælin produces no effect whatever on test-papers. It is not precipitated from its solutions by either tannic acid or acetate of lead, and does not yield precipitates with potassio-mercuric iodide, iodine in iodide of potassium solution, potassio-cadmium iodide or metatungstic acid; phospho-molybdic acid, however, forms a precipitate with it, which dissolves in ammonia with a blue color that disappears on applying heat. The cupric is not reduced by it to the cuprous hydrate even by prolonged boiling. When, however, a small quantity of chamælin is boiled with dilute hydrochloric acid, and this solution, after being neutralized with bicarbonate of soda, is added to Fehling's solution and the mixture boiled, the copper is quickly reduced, thus proving that it is a glucoside.

The aqueous solution of chamælin froths, when shaken, in the same manner as that of saponin, which renders it probable that it is very similar to the last-named

substance, and the other glucosides possessing the same property. Its free solubility in absolute alcohol, and its reactions with the mineral acids, prove, however, that it is not identical with any of these bodies.

As the analysis of the root of the chamælinium had shown that it did not contain any alkaloid or other principle, except chamælin, that might be supposed to produce the effects on the economy that had been observed as resulting from the administration of this drug, a number of experiments were made to determine the physiological action of this glucoside, the result of which has been to prove that it is a cardiac poison, and that it produces its effect by virtue of a depressing influence on the pneumogastric centres, and likewise by more or less completely exhausting or paralyzing the heart-muscle by excessive stimulation of the intra-cardiac ganglia. This conclusion has been arrived at not only from numerous experiments on frogs, but also from the investigation of the toxic action of this substance on the dog and rabbit, the opportunity for studying the subject in this connection having been kindly afforded me by Dr. B. F. Lautenbach, in whose laboratory at the University of Pennsylvania the experiments on these animals were performed.

The effects produced by injecting from one-half of a grain to one grain of chamælin into the thigh of a frog are paralysis of the injected limb, a marked impression on the respiratory function, gradual impairment and loss of voluntary motion, and, finally, death, free from convulsions, in from one to two hours. On examining the hearts of the frogs that had died from the effects of an injection of this substance, either into the thigh or abdominal cavity, they are usually found motionless, with the ventricle filled with blood; in some instances, however, they are empty and flaccid. In those cases where the rhythmic action continues in the auricles after death, the irritation, produced by the instrument in freeing the heart from the pericardium, causes the blood to be expelled from the ventricle, with re-establishment of the rhythmic action in this cavity, thus showing that the circulation has ceased before the contractility of the muscle of the ventricle has been entirely destroyed. If, after section of the medulla oblongata of a frog, the heart be exposed, and a few drops of

the solution of chamælerin be allowed to fall upon this organ, its action becomes more energetic, and the ventricle ceases to act during systole. In the curarized frog, an injection of one grain of the aqueous solution produces at first slowing of the pulse, with lengthening of the ventricular systole; but as the action continues, the ventricular contractions become weaker, and the heart finally stops in diastole. On removing the hearts of live frogs from the body and partially submerging them in a solution of chamælerin, the contractions of the organ are sensibly increased in number and force, the ventricle no longer contracting as a single muscle, but irregularly giving rise to a vermicular or peristaltic movement similar to that observed by Eulenberg and Ehrenhaus, as produced in hearts of frogs treated in like manner with a solution of digitalin. The same peculiar action of the ventricular muscle, which has also been noticed by Stephenson and Fagge and Dr. Nunnally, in the hearts of frogs subjected to the influence of digitalin, was observed both in the curarized animals, and in those where the solution was dropped upon the exposed heart *in situ*, after section of the medulla.

If a frog be etherized, the brain exposed, and about one-third of a grain of chamælerin in solution injected into the hemispheres, violent clonic spasms of the whole body are immediately produced, together with tetanic spasms, giving rise to well-marked opisthotonos, followed by death in a few seconds. As, at the time of my experiments, Dr. Lautenbach had already announced that saponin injected into the brains of mammals would produce paralysis, this fact was communicated to him, when he tried the effect of an injection of a solution of saponin into the brain of a frog, and found that it also caused convulsions of a similar character to those produced by chamælerin. Although the importance of the production of convulsive movements in the above manner is very much lessened, on account of the small size of the brain in the frog, and the consequent impossibility of deciding as to what particular part of the organ was affected by the injection, still their manifestation, under these circumstances, would seem to show that, with carefully-made injections of saponin and chamælerin—and probably of other frothing glucosides—into the brain of a larger animal,

we may yet be able to differentiate the functions of various parts of this organ.

In experimenting on the etherized dog, it was found that after the injection of two grains of chamælerin in solution into the femoral vein the pulse rose from twenty to twenty-eight beats in the ten seconds, while the blood-pressure was but very slightly increased. There was also considerable dilatation of the pupils. Ten minutes later five grains more were injected, when the pulse fell to twenty-two, rising again to twenty-six; no marked change was noticed in the blood-pressure. The pneumogastrics were then divided, and on exciting the peripheral end of the nerve by a weak galvanic current, it was found that inhibition was produced. Two additional injections of two and a half grains were made at intervals of about two minutes, and the same current still found to produce an inhibitory influence upon the heart. An injection of three grains into the carotid artery of the dog failed to produce any convulsive movements. In the etherized rabbit, the pneumogastric nerves were divided, and one grain of chamælerin injected into the jugular vein. No change took place either in the blood-pressure, or in the rate of the pulse. On injecting one and a half grains more after the lapse of about three minutes, very marked tetanus was produced, with considerable rise in the blood-pressure, which was due, however, to the muscular contractions, and not to the effects of the chamælerin.

Although it is difficult to positively attribute the toxic effect of any agent to the influence exerted by it on one or more of the three systems (Von Bezold) of nerves by which the actions of the heart are controlled, it would appear from these experiments that the lethal effect of chamælerin is due partly to the depressing influence exerted by it on the pneumogastric nerves, but more particularly to its stimulation of the intra-cardiac centres, which primarily occasions the ventricle to contract more forcibly, and lengthens its systole, but eventually exhausts its muscular contractility, thus producing stoppage of the heart in diastole. As far as regards the blood-pressure, it would seem, from the experiments on the dog and rabbit, that chamælerin exerts very little, if any, influence on the vaso-motor system of nerves. That it affects the cerebro-

spinal system is apparent in the production of paralysis and convulsive movements. From the effects manifested by chamælrin, when given in quantities sufficient to develop its toxic action, it may be inferred that where the drug is administered in medicinal doses, the action of the chamælrin may be so moderate as to merely cause a slightly stimulating effect upon the heart, having for its result simply an improved condition of the circulation. I am inclined, moreover, to the opinion that the benefit derived from the use of the chamælrin root in diseases of the reproductive organs and in atony of the uterus depends on the influence exerted by its glucoside on the sympathetic system of nerves, whereby the excito-motory and excito-secretory functions of this system are brought into play in such manner as to affect favorably the muscular structure of the uterus, with consequent improvement in the condition of the secretions from this organ.

Whilst still engaged in this investigation, I became aware of the fact that Dr. Laubenbach had ascertained that a solution of saponin dissolved the red corpuscles of the blood, and, consequently, in order to determine whether chamælrin possessed the same property, a small quantity of a solution of this substance was added to some human blood and the mixture examined microscopically with a $\frac{1}{6}$ -inch immersion objective, when it was found that the red corpuscles had entirely disappeared. The experiment was then made in such manner as to bring the solution in contact with the blood after it had been properly focussed, when the disks could be seen fading away, one after another, as they were brought in contact with the solution, without undergoing any change of contour. By using a Holman's current-slide, with a $\frac{1}{6}$ -inch immersion objective, this action was not only rendered more apparent, but the additional fact ascertained that the white corpuscle was also affected by the solution, for, on watching one of them attentively, it was found to become globular in form, while the granular contents assumed an extraordinary degree of activity, and finally escaped from the corpuscle. As the addition of water to the blood produces a similar change in the white corpuscle, causing it to swell up and become globular, and also develops the Brownian movement of the granules, it was determined, in order to

eliminate any effect that might be due to this liquid, to ascertain what would be the effect of adding the chamælrin in dry powder to the blood. Accordingly, a minute quantity of this substance in powder was added to a drop of blood, and, after slightly stirring with the point of a needle, the mixture was examined under the microscope, with precisely the same results, in regard to both the red and the white corpuscles, as had been obtained when the aqueous solution had been used. The following extract from a note received by me from Professor Joseph Leidy will be seen to be strongly corroborative of my opinion that this substance actually dissolves the red corpuscles, and destroys the white by causing rupture of their cell-walls: "I watched the action of the chamælrin on the blood. The red corpuscles truly appear entirely to dissolve away. Without change of form or size, they gradually grow paler and paler, and completely fade from view, so that I afterwards could not detect the slightest trace of them. The white corpuscles withstand the action of the substance longer, finally burst and diffuse their granular contents, which even after some time remain undissolved. As the chamælrin acts on a drop of blood, the red disks are seen to dissolve away from the edges, leaving the colorless ones considerably outside the boundary of the drop."

As it is known that acetic acid apparently dissolves the red corpuscle, which may, however, be faintly brought again into view by the addition of tincture of iodine, before finally deciding whether or not chamælrin really dissolved the blood-disks, or, by merely abstracting the coloring-matter, only rendered them so transparent as not to be visible, it was deemed necessary to ascertain if, by the addition of any staining material to the blood-drops from which the corpuscles had disappeared, these bodies could be again recognized. With this view the various solutions of carmine and the aniline colors, as well as tincture of iodine and osmic acid, were successively used; but as none of these materials brought anything into the field that had the faintest resemblance to a blood-disk, it may be fairly concluded that these bodies are entirely disintegrated by the action of the chamælrin.

I have also ascertained, by experimenting in the same way with digitalin and

senegin (polygalic acid), that these substances also act upon the blood-corpuscles in a similar manner: it is highly probable, therefore, that the frothing glucosides in general possess this solvent property.

ON OPTICO-CILIARY NEUROTOMY —WITH A CASE.

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THIS conservative operation, recently brought so prominently forward in ophthalmic surgery, offers such important advantages that its firm establishment as a justifiable and reliable operation is in every way desirable.

Of course, its chief merit consists in the fact that it allows the patient to retain his eye with unimpaired movements, which, to rich and poor alike, is a matter of greatest moment. But dependent upon this is another fact, which, it seems to me, is a most powerful argument in favor of the operation. All surgeons are but too well aware of the great difficulty often experienced in getting the permission of the patient or his friends to enucleate an eye. If there be indications which are, to the surgeon, unmistakable for the removal of the organ, he of course feels it his duty to enforce his opinion in the firmest manner; but there is a number of cases where the surgeon himself is "almost persuaded," but not quite, and does not feel justified in saying, "In order to save your other eye this one must be removed."

It is precisely in such cases as these that optico-ciliary neurotomy has its highest claim. In these cases of doubt the surgeon would much more readily advise, and the patient much more readily accept, an operation where there is so much less prospect of disfigurement than in enucleation, particularly as enucleation could be subsequently performed if found necessary. The "taking out of an eye" is looked upon by the laity with a kind of horror, and they only accept it when there is no other alternative. And it is my opinion that in the aggregate we would save a larger number of eyes threatened by sympathetic ophthalmia, by this operation, than by enucleation, even if the percentage of successes should be no higher than it promises at present, for the simple

reason that we would have the operation done on a larger number of dangerous eyes. It is a justifiable hope, however, that with increase of experience and improvements in methods the percentage will be increased.

What is most needed at the present time are data, based on statistics as full and fair as we can get them. It is with the object of furthering this end that I offer the humble contribution of one case.

M. J., a negress of 41 years, applied at the Ophthalmic Division of the Central Dispensary, in January, 1880, for relief of a painful and inflamed left eye. It "had gone out with a cold" some years before, and had been periodically inflamed and painful ever since. The cornea was opaque almost throughout its whole extent, and there was a sunken cicatrix at the upper inner corneo-scleral junction. There was not even perception of light. The eye was somewhat sensitive to touch, but there was, at that time, no trouble with its fellow. She was given anodynes and atropine, and ordered to keep quiet and use hot applications. Under this treatment the symptoms abated but did not entirely disappear.

On the 16th of March she presented herself with all the symptoms of sympathetic irritation in her *right* eye. There was intense photophobia and lachrymation with pain, but no clearly-pronounced inflammation anywhere. The optic disk, which was distinctly visible, was perfectly clear. The vision was very much reduced. The left was inflamed and exceedingly tender to touch, particularly at the upper ciliary region. It was decided to try optico-ciliary neurotomy. She was accordingly etherized, and the external rectus taken upon a hook and a suture passed through it not far from its insertion. The tendon was then divided between the suture and the globe. Curved strabismus-scissors were then passed backward and the optic nerve divided. The globe was turned around, and the tissues on its posterior surface severed and the sclerotic laid bare. The ciliary nerves were, as I thought, all divided. After the hemorrhage had been stopped the globe was replaced and the external rectus brought forward and united. After she had come from under the influence of the anæsthetic the sensibility of the cornea was carefully tested. It was found that some feeling still remained at the inner side of the cornea. The external rectus was again detached and the tissues at the back of the globe still more extensively divided, particularly at the inner side. On testing the cornea now it was found that no sensibility remained at any point, and after the wound had been thoroughly cleansed the tendon of the external rectus was once more brought forward and united. There was some exophthalmia, but the eye

moved with considerable freedom. A light bandage was rather firmly applied, and cold applications ordered.

About an hour after I left the Dispensary she was seized with a violent fit of vomiting, and felt, as she expressed it, "the vein give way." The hemorrhage from the eye was considerable, the blood running through the bandage on to the pillow. My assistant saw her as soon after as possible, and on removing the bandage found the lids swollen and puffed out even with the nose and the conjunctiva excessively chemosed and protruding from between the lids. A thin bandage was again applied, and iced compresses ordered to be used during the night. When I saw her the next morning I found the lids enormously swollen and the conjunctiva pushed through the palpebral opening as a rather firm, reddish mass, the blood seeming to be effused into the sub-conjunctival tissue rather than into the conjunctiva itself. The cornea, however, appeared to be unaltered, and the eye was still movable. Iced compresses were ordered to be applied day and night. During the subsequent course of the case there was no pain and but a scanty discharge of yellowish serum. Even at the end of the second day the lids were somewhat softer, and on the fifth there was a quite perceptible reduction in their volume, and the chemosis was also diminished. At the end of the twelfth day both had almost entirely disappeared. The irritation in the right eye disappeared immediately after the operation, and has in no degree returned up to the time of writing, now thirteen weeks after the operation, and she has her normal visual power in that eye. The cornea of the left eye remains in the same condition as before the operation, but is still insensible. The movements of the eye are good, and there is no strabismus. A little fold of hypertrophied conjunctiva is still to be seen at the inner canthus as a remnant of the chemosis.

This case offers two instructive points for notice. The one is that though we may confidently believe we have severed all the ciliary nerves it is by no means certain that such is the case, and in all cases the sensibility of the cornea should be thoroughly tested before the operation is completed. While not denying the possibility of reunion of the divided nerves, it is possible that in some cases where the sympathetic trouble has not been relieved by the operation all the fibres had not been divided. The second point is that even an extensive secondary hemorrhage into the orbit is by no means a disastrous accident. No case could possibly look more unpromising than ours did on the morning after the operation, yet no evil consequences ensued. In-

deed, it might be very properly inferred that an extravasation of blood between the divided ends of the nerves would act in some measure as a preventive to reunion.

June 21, 1880.

NOTES OF CASES EXHIBITING ACTION OF MUSCLES IN PRODUCING FRACTURES AND DISLOCATIONS—WITH TREATMENT.

BY S. J. RADCLIFFE, M.D.,
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CASE I.—C. E. K., aged 30, 6 feet 1½ inches in height, muscles highly developed, straight, good figure and physique, department clerk, amateur base-ball player, in the act of throwing a base-ball of full size and weight across the field to a catcher, with much force, fractured his right humerus at the middle third, transversely. A good deal of tenderness about the point of fracture and along the course of the muscles, and much swelling, followed. In every other respect it was an ordinary fracture, clean, well defined, and without much displacement. The fracture was coaptated easily, and with simple dressings and ordinary lateral splints, keeping the parts in position, with daily observation, the fracture united firmly in about six weeks without the least deformity.

Case II.—A. L. K., aged 28, 5 feet 10½ inches in height, strong, athletic, well developed, compact figure, department clerk, amateur base-ball player, and accustomed to active, developing exercise, after awaking early in the morning, while in the dorsal position, took hold of each head-post of his single bedstead to "stretch" himself, and giving one long, powerful pull, suddenly the head of the right humerus slipped out of the glenoid cavity and down into the axillary space, producing a subglenoid dislocation. I saw him soon after, and found him suffering much pain from the pressure of the head of the bone in its unnatural position and stretching of the ligaments of the joint. Much swelling had not yet developed. After considerable exertion in overcoming the spasmodic condition of the tense, strong muscles of the joint—not having proper assistance—by extension and counter-extension, and the force of my knee in the axilla, the dislocation was reduced, not, however, without much difficulty, the time occupied being from twenty to thirty minutes. No after-effects occurred, and after a few visits the parts resumed their normal condition.

Case III.—On one of the railroads going West, I was requested by the conductor to see one of the train-hands who had received a severe injury. Going out into one of the nearly empty baggage- or freight-cars in front of the passenger-coaches, I found a man in much

distress, holding his right hand in his left, who told me he had terribly strained his right shoulder and could not move his arm for the pain. He was a strong, well-built, muscular man, used to hard work, aged about 40 years, looked as if he had never been sick and could perform any amount of physical labor. I examined his arm, and at once discovered that he had a luxation of the head of the right humerus inward,—a subcoracoid disarticulation. On inquiry he informed me that he got off the train at the station just passed, to deliver freight; the time being short, the train was ordered on. With his hand on the rail, ready to mount, the train increasing its speed, he ran along with it, still holding on, trying to pull himself up. Just as he succeeded in doing so, on letting go his grasp, he felt his arm recede with a thug, and in attempting to move it he found the motions very much impaired and accompanied by a great deal of pain. The place in which he was was a very unfavorable one for manipulations, as the nearly empty car was bobbing and jumping about in every possible direction. Yet with the aid of the conductor and another train assistant, the one holding the man firmly while the other extended the injured arm by main force, standing behind him and placing my foot on a box and my knee in his armpit, with my left hand pressing strongly on his right shoulder, my right hand guiding the head of the bone (after N. R. Smith's plan), I soon had the satisfaction of seeing the luxation reduced.

Case IV.—I was requested to see, in consultation with her physician, Mrs. M. L., Irish, spare built, aged about 60 years, who had suffered a dislocation of the left shoulder a few hours previously, with the following history. Making her bed that morning, she leaned over towards the far side, resting her weight on her left hand, which she placed as far as she could reach beyond the centre of the bed, in order more conveniently to use her right hand to smooth the bed and coverings of that side, when suddenly losing her balance—her left hand remaining in its position on the bed—her body plunged forward and to the right, and with a snap the head of the humerus slipped out of the glenoid cavity and plunged inward under the clavicle as far as its internal third, producing an exaggerated variety of subclavicular luxation, in which position I found it. The doctor stated that he had been trying about an hour to reduce the luxation, had pulled and repelled with sheets and towels, and though a large, heavy young man, he had not been able to accomplish anything. It was rather a bad case in a not very robust-looking old woman, where experiments could not be practised, and care had to be exercised to avoid rupturing the axillary artery, which is especially apt to occur in atheromatous conditions; yet, as it had been severely tested for an hour, the responsibility or danger was

therefore lessened. I flexed the forearm on the arm, drew the arm and forearm thus together obliquely across the chest, there holding the limb thus placed firmly, the left hand grasping the upper part towards the shoulder, and the right hand the lower part towards the elbow, pressing strongly on the elbow to give it the sweep over the rotundity of the chest, then with a certain rather sudden twist or rotation inward and upward, the head of the humerus flew swiftly back into the glenoid cavity,—in as short a time as I take to relate it,—and I left the case in the hands of the attending physician for dressing. Singular to say, in about half an hour after I left her the doctor called to say the bone was disarticulated again; that the woman desired to test her arm to see if it was all right, and giving it two or three circular swings, the relaxed muscles and ligaments allowed the head of the humerus to be disarticulated again, though it was not thrown so far from the joint as before, but in the same direction; it was now a subcoracoid luxation. I reduced it again in the same way in a few minutes, and then saw that the dressings were completed. The case recovered.

I present these cases not without the hope that they may be of sufficient interest to be worth recording. They are somewhat rare in themselves, and show how different and varied may be the means and forces that produce solution of continuity in a part, as well as the ingenuity that is frequently requisite to meet the requirements of the many anomalous conditions presented to the surgeon, with whom the successful application of means to ends lies in the direction of solid improvement.

Case I. exhibits the result of direct muscular action upon the shaft of long bones. This accident does not very frequently occur, only a few cases having been reported, and its chief interest may possibly lie in that direction.

Cases II. and III. show the forces implicated, tending to produce displacement, of a more indirect character. In *Case II.* the body was comparatively in repose, while in *Case III.* it had the gravity of the body to contend with.

Case IV. resulted probably more from a passive or negative condition of the muscles. The muscles of the shoulder and arm, being over-strained from maintaining the weight of the body in a certain position, became enfeebled, and unable, therefore, to continue their normal functions, yielded passively to the superimposed pressure, and consequently to the luxations. After the head of the bone had

left its socket, its course was limited only by its most distant barrier.

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A NOTE ON THE ADMINISTRATION OF PHOSPHORIC ACID.

BY WILLIAM PEPPER, A.M., M.D.,

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I HAVE for several years been using phosphoric acid internally in a large number of cases. The medicinal properties that are usually assigned to this drug are those of a tonic to the digestive organs and to the nervous system. It is usually administered in the form of dilute phosphoric acid, alone or in combination with some other tonic, such as quinia, tincture of the chloride of iron, etc.

After having satisfied myself that it is a remedy of very great value in suitable cases, I was led to consider its administration in conjunction with other substances by noting the large extent to which I found the preparation termed Horsford's Acid Phosphate used in this community without prescription from any physician.

I found, on inquiry, that this preparation, the formula of which is published in the paper accompanying each bottle, contains the following ingredients in each fluidrachm:

℞ Acid. phosphor. (free), grs. vss;
Calcis phosphat., grs. iii;
Magnesii phosphat., gr. ss;
Ferri phosphat., gr. $\frac{1}{6}$;
Potassii phosphat., gr. $\frac{1}{4}$.

It is a liquid of an intensely sour taste, with scarcely any appreciable trace of the taste of iron, and, when very freely diluted with water, is not an unpleasant dose. Many patients, however, complain of its intense sourness, and in the dose recommended by the makers (f3ss) it quite frequently causes irritation of the stomach and looseness of the bowels, on account of the large proportion of phosphoric acid contained.

As each fluidrachm contains five and one-half grains of free phosphoric acid, which is equivalent to sixty-six minims of dilute phosphoric acid, the ordinary dose of a half-teaspoonful of the acid phosphate contains the equivalent of thirty-three minims of dilute phosphoric acid,—an amount which is more than will be readily tolerated by many stomachs. In addition,

it is clear that the quantities of the phosphates of magnesium, iron, and potassium present in half a teaspoonful of the "acid phosphate," namely, grain one-fourth, one-twelfth, and one-eighth, respectively, are too minute to produce decided therapeutic effects. In very many of the cases, however, where phosphoric acid is indicated, efficient doses of these associated phosphates would also be desirable.

Despite these defects, I ascertained that Horsford's Acid Phosphate had been used with such good results as to suggest the desirability of an analogous preparation more in accordance with the views above expressed. I therefore requested Henry C. Blair's Sons, the well-known apothecaries of this city, to compound for me the two following formulæ:

First.—*Liquor Acidi Phosphorici Comp. (with Iron).*

℞ Calcis phosphat., grs. iii;
Magnesii phosphat., gr. ss;
Potassii phosphat., gr. $\frac{1}{4}$;
Ferri phosphat., gr. $\frac{1}{2}$;
Syrupy phosphor. acid, ℥vi $\frac{3}{8}$;
Aquæ, q. s. ft. f3i.

Second.—*Liquor Acidi Phosphorici (without Iron).*

℞ Calcis phosphat., grs. iii;
Magnesii phosphat., grs. ii;
Potassii phosphat., grs. iss;
Syrupy phosphor. acid, ℥v;
Aquæ, q. s. ft. f3i.

After various trials, they have prepared these formulæ in permanent and eligible forms.

It will be observed, in the first place, that the amount of phosphoric acid is somewhat less than that contained in Horsford's Acid Phosphate, as the syrupy phosphoric acid used in the preparation of these formulæ is about sixty per cent. the strength of glacial phosphoric acid; so that the compound solution (No. 1) contains the equivalent of about forty-five minims of the dilute phosphoric acid in each fluidrachm, and the simple solution (No. 2) contains the equivalent of about thirty-six minims of dilute phosphoric acid in the fluidrachm. The amount of iron in the one, and of the other phosphates in the second solution, are such that while the chief action of these preparations would, of course, be due to the

phosphoric acid, the associated elements may be expected, even in moderate doses, to produce some appreciable effect.

I have used these two solutions lately with very satisfactory results, and I incline to think they deserve an extended trial.

NOTES OF HOSPITAL PRACTICE.

COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

CLINICAL SERVICE OF EDWARD C. SEGUIN, M.D., PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM.

Reported for the *Philadelphia Medical Times*.

PARALYSIS OF THE ARM OF TRAUMATIC ORIGIN.

GENTLEMEN,—The patient now before you received an injury of the right shoulder nearly eight weeks ago, by being struck by an iron brace one hundred feet long and seven-eighths of an inch in thickness. The momentum of such a long bar of iron must have been very great, and hence the blow was a most violent one. The man was first seen by Professor Little, of this college, who, after a careful examination of the injured shoulder, discovered a fracture of the coracoid process. On account of the extreme rarity of this accident, Professor Frank Hamilton, the author of the best work on fractures and dislocations in the English language, was called in to see the case, and, although his surgical experience has been so large, I understood him to say that he had never before seen an instance of it. There was no dislocation of the shoulder, but, in addition to the fracture of the coracoid process, it was found that there was complete paralysis of the arm. Dr. Little, as a surgeon, was naturally more interested in the fracture, but, finding that the paralysis persisted, he handed the case over to me. Of course, as a neurologist, I was more interested in the paralysis; and this is also the case at present with the patient, since the fracture no longer gives him any trouble.

On making an examination now, we find that there is marked atrophy of all the muscles of the shoulder and arm. This is especially the case with the deltoid, and it produces an appearance resembling a partial dislocation downward at the shoulder-joint. Sensation is entirely abolished in the fingers, forearm, and for some little

distance above the elbow, but above that it begins to appear, and as we approach the brachial plexus it is found to be normal. There is no faradic reaction whatever in the muscles of the arm, although there seems to be a somewhat doubtful reaction in those of the scapula. When galvanism is resorted to, we find those peculiar, slow, vermicular movements of the muscles which are characteristic of nerve degeneration.

Now, what is the lesion producing such phenomena as the above? I believe it to be a physiological division of the nerves by reason of the accident which has been described. It is possible that the trunk of a nerve may receive little or no injury, and yet that the nerve-fibres within should be divided or suffer such marked contusion as to have their functions destroyed. This is what we understand by the physiological division of a nerve; and I think that in this case it has occurred in all the thin cords of the brachial plexus, while the branches which go to supply the pectoral muscles and the shoulder itself have also been more or less affected. The location of the injury was probably in the upper part of the axillary space.

Besides the paralysis, we find that the patient has suffered from a great deal of neuralgia in the affected extremity. This originated in the fingers only three or four hours after the reception of the injury, and has continued ever since. Such primary neuralgia in cases of this kind is an exception to the general rule. In most of the instances of nerve injury that I have seen the neuralgia has been secondary, and has not appeared until two weeks or more after the division or contusion of the nerve-fibres. Here the musculo-spiral and ulnar nerves are the principal seats of the neuralgic pain, and it has been relieved to a considerable extent by galvanism.

The class of cases to which the present one belongs has not been studied nearly as much as it should have been, because they are not by any means as rare as most observers seem to suppose. At this clinic quite a number of them have been presented during the past few years, although until now there has not been one here very lately. So far as I have been able to study the subject in its clinical aspects, it has seemed to me that the explanation of the difficulty must be as follows:

If we look at a human skeleton from

above downwards, it will be seen that there is a somewhat triangular space between the shoulder-joint and the thorax, bounded on one side by the clavicle, on another by the scapula, and on the third (which is the base) by the ribs, while the apex is represented by the shoulder-joint. Within this space are located numerous large nerves and blood-vessels. Now, it has occurred to me that, in such accidents as this patient has met with, the whole of this triangular apparatus is driven strongly inward against the first, second, and third ribs. The blood-vessels and nerves are thus caught between these unyielding bony surfaces at the moment of the accident, and receive more or less injury, according to the amount of force that is brought to bear upon them. In the present instance the whole brachial plexus must have been completely crushed.

I offer the above hypothesis now merely as a suggestion, but I trust that I shall soon be able to make some experimental researches in regard to the effect of strong force caused suddenly to act upon this portion of the body, by which its truth may be either established or disproved.

On account of the favorable experience that I have had in similar cases, I have encouraged this patient to expect improvement in his arm. I will not, of course, say that he will have as good use of the extremity and of all his fingers as he had before, but I still think that after a time its condition will be very much better than at present. The nerves, you will find, have wonderful recuperative power. It is necessary to warn the patient, however, that in his case the atrophy of the muscles may go on increasing for several months yet; but, although I do not believe that the atrophic process has yet reached its maximum, the favorable prognosis is not thereby overthrown.

Before passing on to another case, I will call your attention to the fact that this patient has a pupil of smaller size on the side upon which he received the injury than upon the other. This is a coincidence which I have now remarked in quite a number of cases, and I first noticed the symptom four years ago in a patient who had laceration of the brachial plexus. This was a man who was driven for a considerable distance through the air by a premature discharge of a cannon which he was engaged in loading. The most serious

injury which he received from the accident was a compound fracture of the bones of the forearm, which rendered amputation necessary; but, in addition to this, there was a bad laceration of the nerves, which extended above the point where the amputation was made. On account of the extreme suffering which he experienced from this (the pain almost driving him frantic), a resection of the nerves going to the brachial plexus was made. About a quarter of an inch of each of the nerves operated upon was removed, but, unfortunately, the neuritis giving rise to the trouble had extended beyond the point of section, and but little relief was thereby secured.

I made a communication in regard to this matter to the American Neurological Association, and it was then ascertained that other gentlemen had observed the same fact. Among these was Dr. Hammond, who had noticed it in a case of "crutch-palsy" which had been under his care.

Three or four weeks ago, as some of you will perhaps remember, I presented at the clinic a woman who had secondary and tertiary cancerous deposits in the axilla which compressed the brachial plexus, and in her case also there was contraction of the pupil on the side that was thus affected.

This condition of the pupil seems, therefore, to be an evidence of injury to the brachial plexus; but it should not be forgotten that it may also be due to a number of other causes, as, for instance, aneurisms, enlarged cervical glands, and certain forms of disease of the heart. Consequently, it is not ordinarily of very great assistance from a diagnostic point of view, although in some instances it may not be without considerable significance.

(To be continued.)

TRANSLATIONS.

POISONING BY BELLADONNA TREATED BY CHLORAL.—Dr. Troquart (*La France Méd.*, 1880, p. 365) reports the case of a patient, 24 years of age, who, having suffered for some days with ringing in the ears, was recommended to take belladonna. He took a handful of belladonna leaves, of which he made an infusion in a small quantity of boiling water, and swallowed the fluid. Half an hour later he was seized with severe pain in the stomach, excitement, and vertigo. He then took some

tartar emetic, which produced vomiting. Three hours after the ingestion of the belladonna Dr. Troquart saw the patient for the first time. He was then violently delirious, stretched upon a bed, where he was only held down by the united exertions of four persons, and uttering piercing cries. He did not recognize the members of his family who stood around him. His face was flushed, animated, covered with perspiration, his eyes haggard, the pupils dilated, the entire body animated by disordered movements. This access of furious delirium lasted four or five minutes, then the patient fell into a condition of complete prostration, to which again succeeded a fresh attack of delirium a few minutes later. Dr. Troquart ordered the patient strapped to the bed, and that he should take a potion containing a drachm of chloral. Returning several hours later, it was ascertained that the chloral had not been given, the patient keeping his mouth tightly closed, and the attendants having been unable to force him to swallow. Dr. T. then gave him at once an enema containing eighty grains of chloral. Very soon after, calmness succeeded to violence, and the patient fell asleep. When he awoke, and the delirium seemed likely to recur, he was given some more chloral. The night following passed without disturbance, and the patient awoke next morning with nothing more than severe muscular fatigue.

LYMPHATIC PHLEGMON—CURE BY RESORPTION OF PUS.—M. A. Poulin (*La France Méd.*, 1880, p. 410) says that lymphangitis frequently constitutes a complication of cutaneous affections, often accompanying such superficial eruptions as eczema and itch. In his paper he only desires to speak of the possible resorption of pus in the case of lymphatic abscesses, even when these are somewhat extensive. These abscesses are not raw, and even when pus has already formed in them, it may be evacuated without opening them. Of course it will not do to temporize too long, and, under the pretence of avoiding an incision, permit the pus to infiltrate the surrounding tissues. But it should be remembered that under the influence of rest fluctuation may disappear little by little, and resorption may be completely accomplished. It is rarer to find an abscess forming in the course of the lymphatic vessels. Even in this case, however,

the pus may be absorbed. M. Poulin subjoins the case of a man of 37, who was admitted to the St. Louis Hospital suffering with excoriations of the left foot, following chilblains of some months previous. Two days previously he had had a chill, and at the same time his leg began to swell. On examination the patient was found suffering with a superficial ulceration of the dorsal surface of the left great toe. The limb was œdematous in its lower portion, the skin hot and roseate, presenting a red color with an ecchymotic shade, even to the calf. Œdema also existed. From the calf a reddish line could be traced, running up the thigh, and following the course of the saphenous vein. The inguinal glands were engorged without being very voluminous and without periadenitis. A day or two later, the patient having kept his bed meanwhile, a fluctuating tumor appeared in the calf, which evidently contained pus. In spite of suppuration having taken place, careful treatment by perfect rest alone resulted in the entire absorption of the pus without any opening having formed.

HYDROCEPHALUS INTERNUS SYPHILITICUS.—Laschkewitsch (*Cbl. f. Chir.*, 1880, No. 23; from a Russian source) expresses the opinion that under the influence of syphilis a disturbance of purely inflammatory character may develop itself in the brain. The inflammation of the ependyma, with resulting effusion of fluid into the ventricles, is an example. This affection is usually accompanied by other syphilitic changes in the brain, but it invariably preponderates, and must be regarded as an especial disease, with its own characteristic symptomatology. Its symptoms are: headache, which appears with unusual severity at the beginning of the disease; nausea and vomiting, easily induced by movements of the head and changes in the position of the patient. Psychic activity is dulled with the progress of the disease. The pupils are enlarged, but are sensitive to light. The ophthalmoscope shows passive hyperæmia of the eye-ground. The course of the disease is chronic; it begins after the period of the gumma.

The diagnosis is not difficult in connection with an exact history of the affection; in the absence of the latter the diagnosis is much more difficult. At the beginning of the disease it may be mistaken for an ordinary cephalalgia, or, particularly in

children, for incipient tubercular meningitis. The following points may serve to aid the differential diagnosis:

Cephalalgia is rarely met with, and when it occurs is periodical, with long intervals, during which the patient feels quite well. Ependymitis syphilitica, on the other hand, gives the patient no rest, and grows worse and worse. In cephalalgia there is no hyperæmia of the eye-ground. As to meningitis tuberculosa, alteration of the pulse is here present already in the earlier period; the patient suffers with fever, followed, a little later, by delirium, convulsions, etc. As to therapeutics, Laschkewitsch recommends the simultaneous employment of iodide and bromide of potassium or sodium.

UNION BY CATGUT LIGATURE IN TRANSVERSE FRACTURE OF THE PATELLA.—Professor Volkmann (*Cbl. f. Med.*, 1880, No. 24) alludes to Kocher's process, by which the use of Malgaigne's hooks can be avoided. A strong double silver wire is carried, by means of a curved needle, under the patella, inserting the needle under the lower border of the inferior fragment, and bringing it out above the upper border of the superior fragment. The chief difficulties in approximating the fragments by drawing on these wires are the bleeding and the crumpling of the skin. In order to make the operation easier, Kocher makes two longitudinal incisions above and below the patella, two centimetres in length, and only going through the skin. Antiseptic precautions are taken, and after forty-eight hours or so the wires are tightened up again. Volkmann says that this procedure should be called suture of the tendons rather than suture of the bones, in contradistinction to a somewhat similar operation which has been recommended, and he thinks it to be preferred in recent cases when simpler dressings cannot be employed. While the joint may be punctured to allow the escape of an effusion of blood, which may keep the broken fragments of the patella apart, such an extensive opening as is necessary for suture of the bones is by no means to be advised,—at least, as a general thing. But even by Kocher's procedure the wire must be drawn through the joint, and must remain there for a greater or less period; and it might be questioned if some plan could not be devised whereby the end could be obtained by some other means. Volkmann himself has never seen any harm

come of opening the joints under antiseptic precautions, but he thinks that all surgeons are not capable of carrying out this procedure properly.

After the wire is drawn tight, a plaster-of-Paris bandage is applied, leaving holes for the withdrawal of the sutures. Volkmann gets bony union, which, he says, is almost impossible by older operations, because the separated portions of the bone cannot be brought closely in contact.

GENERALIZED TELANGIECTASIS.—At a recent meeting of the Société des Hôpitaux (*La France Méd.*, 1880, No. 48), M. Vidal referred to a case related by Tantarri, of Naples, which the latter entitled "generalized and idiopathic vinous dermatosis." The patient whom Dr. Vidal brought forward was a woman 31 years of age. She was extremely neuropathic. At thirteen years of age she began to menstruate. At fourteen she began to suffer from urticaria. At the date of her exhibition to the society she showed various macular lesions which tended to generalization; on the legs were some very superficial varices. She suffered occasionally from unendurable pruritus, with a chilly feeling whenever the temperature changed or when her nervous system was excited by any cause. The first symptoms had occurred after some violent emotion. Urticaria continued to show itself not infrequently. On the arms a vinous red tint prevailed, with an erectile condition. If the skin was stretched it lost its red color and became yellow. The tints became grayish, however, when the limb was compressed near the trunk. The face was covered with marbled patches, which had been somewhat modified by scarification. M. Vidal regarded the case as a form of telangiectasis.

NEW FORMULA FOR FEHLING'S SOLUTION.—In order to replace the ordinary Fehling's solution, which, as is known, decomposes after a time, Schreiter, of Würtemberg, suggests the following:

R Sodii salicylati,
Cupri sulphatis, aa grm. i;
Sodii caustici, grm. v;
Aquæ destillatæ, grm. xx.—M.

After filtration a clear blue fluid is obtained. On heating this in a test-tube the copper salt is decomposed, and the least trace of sugar present is indicated by a fine brownish-red color. According to Schreiter, this liquid can be perfectly well preserved.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, AUGUST 14, 1880.

EDITORIAL.

THE PHARMACOPŒIA.

THE United States Pharmacopœia Committee appear to be energetically engaged in preparing the work which was intrusted to them, but some propositions which were recently shown to us as having been submitted to the committee by one of its members excite the fear that activity may outrun wisdom. Discussion is, however, not decision, and we believe that there is too much good sense and conservatism in the committee for it to be carried away by a few members. A little public discussion of the matters concerned can do no harm, and may do good by strengthening the hands of those who are opposed to violent changes.

It is proposed to alter the nomenclature of the Pharmacopœia so as to make it conform with that at present in vogue among chemists, and also to be more consonant with that of continental Europe.

If Mr. Rice were Czar of all the Russias, and we were all Russians, his committee might make the nomenclature what he would, and we would have to bow in submission. But the doctors and druggists for whom the committee is at work are Americans, and the committee is not their ruler, but their bondsman, to do that which the professions of medicine and pharmacy desire; else, assuredly the professions will eventually scout it and its Pharmacopœia. In other words, the Pharmacopœia must follow, and not lead, the moderately advanced medical public opinion, if it is to be an obeyed standard and to guide the mass of the profession. Then, again, doctors are busy men, and busy men do not

want to be, and will not be, oppressed in their work by fanciful innovations.

"'Ferrico-Ferrosus Phosphas.' Humph! Ferri Phosphas has served me forty years: I will stick to it." Such will certainly be the language of conduct, if not of speech, of the mass of the profession, if chemistry breaks loose upon the pages of the new Pharmacopœia. The names will remain a dead letter, and the living and dead bound together must meet a common fate. The inertia of such a body of men as the Pharmacopœia has to do with is enormous, and no committee can lift the dead weight more than a very little; if it attempts too much, it will succeed in nothing except in wrecking the important interest confided to it.

Further, not only is it impracticable, but if it were practicable it would be, in our opinion, unwise to attempt accord with chemical nomenclature. We want that which is staid, not that which is ever shifting, in a national standard. Hydrargyri chloridum corrosivum says at once the corrosive combination of mercury and chlorine, and from all time to all time marks distinctly what is wanted, and cautions both prescriber and dispenser against danger. The most ignorant drug-clerk can hardly mistake such a name, whilst in order to read aright the last chemical appellation the chemical professor or the graduate of not more than three months' standing must be sent for. What sort of a foundation can be laid upon the mobile quicksands of chemical theory?

Plainness, simplicity, permanency, brevity,—these are what are wanted in the nomenclature of the Pharmacopœia far more than extreme scientific accuracy or completeness; although the latter is of course desirable if obtained without sacrifice of essentials.

Kalium, stibium, natrium,—these, to replace the good old-fashioned names of potassium, antimonium, sodium, in order to bring us into sympathy with the Ger-

mans and French. A very large number of officinal names would be affected by these alterations, and, so far as we can see, no good achieved, save only a momentary gratification of the restless deity of change. Just so far as we draw near to the Continental pharmacopœias we draw away from the English standard. All our linguistic sympathies naturally flow towards England, not France or Germany; it is an English-speaking, not a French-chattering or a German-gutturalizing, people that the Pharmacopœia is being prepared for. The deep, strong river of Anglo-Saxon has flooded this continent with its pure waters; German, French, Italian, and a host of minor streams are flowing in, but let us all aid in seeing that they do not pollute our most worshipful of languages.

CORRESPONDENCE.

LONDON LETTER.

THE position of matters at Guy's Hospital does not improve, and what the result will be no one can foresee; but each side seems buckling on its armor for a stubborn contest. Personally I am not at all confident that the battle will end in a victory for our profession. Strong as is the staff of Guy's, and large as it is, the social position of the profession is such that little real regard is shown for us. There is a great deal of showy outside consideration exhibited towards us, but underneath the feeling is less friendly. There will be much licking of the outside of the platter, but it will not go further; at least if it does I shall be agreeably surprised. Probably your readers who do not know England personally will feel much surprise, mingled with chagrin, at the idea that the profession here can thus be slighted, but that is because they do not know how matters actually stand in the old country. To comprehend the matter they must take a bird's-eye view of us. There are in the profession a number of excellent men, hard-working, sincere, intelligent, and trustworthy, men of whom any profession may well be proud. Such men come to the front and are conspicuous, either in literature or in good social practice, where their qualities give them a far-reaching personal influence. But there is the obverse side of the picture, and, at the risk of wounding the susceptibilities of the editor of the *British Medical Journal*, it must be con-

fessed that there are also men—at least persons presenting the semblance and outer characteristics of men—in the profession who would sink anything that ever floated from the days of Noah's ark to the "Great Eastern." These are the individuals who really lower the profession in the eyes of other men. It is not the open blackguard who does so much harm. His shortcomings are readily apparent; he may be a blackguard, but he is not a fraud. He is comparatively rare, too; so rare as not to count for anything. The real dead weight on the profession is a far different man. He is the type of respectability. It is impossible to point to blemish or spot on him. Go over him bit by bit with a microscope, and he is perfect. Human perfectibility has reached its acme in him. The human apotheosis is attained at last. And yet the whited sepulchre is not the less a despicable fraud. He is utterly hollow, and a drum is a solid of high specific gravity compared with him. He knows what he is only too well; and he has a very low opinion of other people. Entitled to no confidence in himself, he is not in a position to feel much confidence in any one else. He is at once suspicious and treacherous. There is a chill atmosphere of doubt around the frigid respectability of the man. He has not given much study to the well-known work "Lord Chesterfield's Letters to his Son," but he has learned the lessons there inculcated pretty thoroughly. His manners are unexceptionable, his morals unimpeachable; he never told "a gentleman's story" or related a personal professional reminiscence louder than in a whisper, and then only to a select circle of auditors. He is a "very proper gentleman" indeed. Yet his conversation contains a deal of calumny. No member of the profession, with the exception of a very select few, stands high in his opinion. Censure is his forte, disparagement is his diversion in life. He has some poisonous scandal to tell of one man, or some shocking story of reported alcoholic indulgence in another. He has an instinctive hatred of honesty and uprightness, and takes his revenge by traducing the moral character of those who are better and worthier than himself. He is not capable of much himself, but he is a tower amidst the ruins of others' wrecked reputations, as he clambers up over their remains into a "good social position," and manifests his excellent qualities by contrast. Ladies look upon him almost with awe. His perfection of character subdues them. His small talk of scandal and disparagement impresses them. But his hospital committee pay little respect to his wishes. From the first day he appeared before them to the day when he will resign his post after years of meritorious service, he has sought his own ends, and they know it. Business men, as most men are who are on the committees of hospitals, detect this fraud very soon, and know his value to a hay-seed.

They see him all ardor and propriety to get on the staff. It is admitted he is not a "strong" man, but he has friends who recognize his merits. He is a plodder; there is promise in him! He is cunning, and makes friends, but no enemies. But while he is observing other people he is not always acutely conscious that there are others watching him. He twists and turns like a weasel, and there are people who recognize the weasel characteristics in him. After a time he attains a senior position on the staff, and a new side of his character develops itself. Having not fulfilled the promises which his early friends imagined they saw in him, he is not anxious to have any brilliant juniors. He cannot have his little flame of light placed in any contrast that will make it less than he can help. His self-interests, the opinions of the students, must be kept carefully in view. A brilliant energetic junior might impress the students, and when they become practitioners, and have consultations in their power, they might send for this junior, and so divert some guineas which otherwise would come into his pocket. He sees all this clearly enough, and takes his measures accordingly. He will have no talent below him in his department. If a physician, he is all ardor when there is a surgical appointment to be made; the best man, to be sure! The interests of the hospital! He is crystallized integrity. But let the appointment be on his side of the staff, and then what does he do? He goes about dropping distilled poison into the ear of each member of the committee, and leaves it to work. He tells one man he fears the habits of the ablest candidate are not such that he can remain long at his post; to a committee-man of another temperament—the apprehensive order of mind—he whispers his fears that the candidate best fitted intellectually for the vacant post is not strong in constitution, or not possessed of funds sufficient to hang on till practice comes, and so quietly assassinates him. The worst of this low scheming is that another reputation has to be blackened that he may carry his vile ends, and he neither knows nor cares how far this injury to another may go, nor how long it will last, nor what it ultimately costs the unfortunate victim, provided he only keeps him off the staff. And then this scheming, wriggling creature often deludes himself into the belief that the members of the committee do not apprehend his conduct and note his intrigues. As a "dangerous" man the other members of the staff treat him with a certain respect, and defer to his wishes, often against their better judgment, and this also the lay committee observe. How, then, is it possible, so long as the profession is false to itself, for it to have that social position and influence which it ought to have? It must first dethrone a lot of its false gods and let merit have a fairer innings before the outside world will respect it.

No reader must imagine the above sketch to be a picture of any one on the staff of Guy's Hospital, or indeed of any one individual on any hospital staff in London, but there are those who will recognize the type of man here sketched and recognize the fidelity of the picture. There are plenty of imperfect copies of the picture, I regret to say, both among the hospital men and others in the profession in London and elsewhere. The question may be pertinently asked why there are plenty of this detestable kind of character in the medical profession. And the reply is, the pursuit of medicine is peculiarly favorable for such characters. Probably nothing is more difficult as an intellectual process than for a patient to gauge and estimate correctly the value of a medical man's services. The only test is "results." Now, a favorable result is often the consequence of a patient's good constitution rather than the skill displayed by the medical attendant. But how is this to be determined by the patient or his friends? On the other hand, if the patient die, what is there to prevent any one who wants to say so from saying that if a different line of treatment had been adopted the patient would have survived? Nothing in the world. Consequently, if a man is plausible, knows something of his profession, knows a little more of human nature, and possesses a not very sensitive conscience, medicine affords him a very suitable field for the display of his "talents," such as they are; and as to gathering together wealth such a man is no "unprofitable servant." Medicine does very well for him, but what does he do for medicine? that is another matter! This type of man plays the very deuce with the standing of the profession, as he would with any other profession or calling, if he existed in it in equal proportion. Then there is the vast bulk of mere respectable mediocrity which finds its way on to the medical staffs of hospitals. A man goes to a medical school holding a good social position; his friends are in a position to meet members of the staff at dinner and invite them to their houses; and this dinner question is a wonderful lever in Old England for lifting a weight out of the way. The youth is steady, for, having friends in town, he is saved from much temptation which necessarily lies in the path of a youth up from the country, who has to make his own friends and kill his spare time as best he can, and therefore often gets into much mischief that the other man is saved from. But reverse the position of the men, and what would be their respective behavior? Very different, I venture to say. Then these men become intimate with a number of the staff, and the personal-friendship element is no little matter. So the steady youth's way is prepared for him. His friends possess such means that there is no fear of his breaking down financially,—one of the most terrible things that can happen socially to the staff of

a hospital. So he gets a registrarship at the hospital, is the selected next man for the staff, and in time gets upon it. Once there, survivorship passes him on to the highest final grades. He starts with pathology, then lectures on materia medica, and finally rests in the chair of practical medicine. During all this time, however, he is but a mediocrity, and his colleagues know it. But, nevertheless, he is there, and they know that too! Now, such a man dare not entertain the thought of severing his connection with the hospital; it is his sole hope of success in life; he must stick to it, or drown in the surging waters of London life. A certain proportion of these men may be floated by the energy of the other men who do possess power. But too much of this dead weight gets the place too desperately near what seamen call the "load-line," and the craft becomes unsafe. If our hospitals would only adopt the German plan of having subordinate posts, where a poor man could get bed and board and earn a trifle by teaching for his clothes and pocket-money, and so hang on to his hospital, it would be infinitely better for the hospital in the end. Hospitals drive away a lot of their best talent that they would do well to keep, and keep a lot of mediocrity they would do well to drive away. The treasurer of St. Bartholomew's has taken a most proper step lately, viz., he has abolished the costly canvas of the governors, which was such a terrible fine for many men, and which deterred many able men who could not possibly afford it from attempting to get on the staff of that hospital. This is in every way to be commended. It is the constitution of the staff with its large proportion of mediocrities upon it which often paralyzes action in hospital rows: what energy there exists is too heavily handicapped to take decisive steps.

Now, I dare say the reader by this time is beginning to see why the medical staff of Guy's Hospital do not take the step of resigning *en masse*. The staff of Guy's contains a very large proportion of very good men, first-rate men in every way; the hospital has not one man of mediocre ability on its staff; it has always set an excellent example in the selection of men to come on its staff; its medical staff is not emasculated by the presence of either of the class of men just described. Then the reader may ask, "Why do not the staff resign *en masse* and bring their opponents to their senses?" Just, for one reason at least, because they know that there would be no difficulty experienced by the governing body in filling their places. They know quite well that in the huge mass of medical men in London there are a sufficiency of men, not unknown to the profession either, to whom the temptation of being on the staff of Guy's Hospital would be too much for their conscience and their power of resisting temptation. Even in its present position, shorn of much of its glory, Guy's Hospital

could be run with a new staff, by no means contemptible intellectually, at very short notice. Hence it is unavoidable that the staff act warily. To resign *en masse* would be acting suicidally in the face of the facts recorded above,—or at least what I apprehend to be facts. It is just this unfortunate fact, that medicine offers a peculiarly good field for the polished man devoid of principle,—who affects an almost impossible height of virtue and leads a life of actual depravity,—that paralyzes action. The profession knows well what untrustworthy elements there are in it, and the large proportion of men in it who are virtuous from the absence of temptation, but who could not be trusted in the presence of temptation, and they themselves as well as other people know it. In saying this I do not desire to disparage the profession as a body: the bulk of the profession are honorable men, as every one knows. It is the men who vulgarly are called "sneaks," the men that cannot be relied upon in an emergency, or rather that may be relied upon safely enough to break down like a bad gun-barrel under the government test, that are the plague of the profession. Of course it is very likely that some of these individuals will get up a lamentable howl at my abusing the profession, simply because I have uncovered their nakedness. Or it is quite possible that the editor of the *British Medical Journal* may get up on his stilts again and admonish me in abusive language; but there is nothing very deterrent in that; there is thunder—and thunder. The first does carry with it an element of fear; the latter does not, but involves an element which provokes contempt. But even he admits that the profession is not treated as it ought to be; and in the number for July 17 he says, in speaking of a verdict imputing "gross negligence" to the medical superintendent of the City of London Infirmary, "This case is another instance of the scant consideration and absolute injustice which our profession too frequently receives at the hands of the general public." The public know that they can kick the profession safely, as the different rows which recently have gone on and are going on at various places only too painfully testify. And it is no good blinking the distasteful fact. Why can't the profession kick back effectively? Because the capable part of it is too heavily handicapped by the incapable portion; that section who are not merely a dead weight upon it from their own unworthiness, but who further depress and lower the profession by private and insidious depreciation of abler, honest, and more energetic men than themselves; men who wilfully close their eyes to the fact that the reputation of the profession is the aggregate of individual reputations, and who constantly violate the law of loving their neighbors as themselves.

J. MILNER FOTHERGILL.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, JUNE 24, 1880.

The PRESIDENT, DR. S. W. GROSS, in the chair.

Cancer of the pylorus. Presented by Dr. JAMES TYSON.

SPECIMEN I.—G. E. C., aged 32, a grocer and provision-dealer, had always been dyspeptic, but never otherwise seriously ill until February, 1879, when he is said to have had an attack of diphtheria, from the effects of which he had only partially recovered when he returned to his business. He consulted me first about the 25th of April, 1879, with a slight sore-throat, but chiefly on account of an extreme feeling of weakness. His pulse was frequent and feeble. A careful physical exploration failed to discover any affection of the heart and lungs. The usual restorative measures—iron, quinine, digitalis, good food, a visit to the sea-side—all failed to relieve him. For a short time I thought him hypochondriacal, but was soon satisfied that his illness was earnest. About the 15th of May I put him to bed. About this time, also, I was impressed by his extreme pallor. His hands and fingers appeared almost bloodless, and it was with difficulty that I secured a drop of blood from his finger for microscopical examination. The drop itself appeared like a drop of serum, and I thought the number of colorless corpuscles was slightly increased, but no careful count was made, and the observation cannot be said to have any value. Nevertheless, I concluded that I had to do with one of the set of cases of which leukaemia and pernicious anaemia are examples. My colleague, Dr. Pepper, saw him, in consultation with me, on June 7, and we together gave him a thorough examination, which resulted in no further development, but rather in a confirmation of my original opinion. Under the use of dialyzed iron, quinine, arsenic, sulphate of strychnia, milk, andunctions with cod-liver oil, he seemed for a time to improve. His pulse, which had been 96 to 100, and still further increased on the slightest exertion, was often as low as 84, though easily accelerated; his color seemed better; and on pricking the fingers, about June 20, the drop of blood obtained appeared brighter red in hue, although in the mean time he had had a sharp attack of diarrhoea and of hemicrania, which yielded only to large doses of quinine and hypodermic injections of sulphate of morphia. Some headache continuing, the iron was discontinued on the 28th of June, but recommenced July 7 and continued, with the arsenic, until July 24. The very liberal diet instituted was borne very well until the 19th of July, when for the

first time his stomach gave way. For three days he vomited in an undigested state all food taken, and a milk diet was instituted. Repeated examinations of his stomach in the course of his illness had failed to discover a tumor, but at this time (July 21) I was able to mark out an indistinct area of dulness, about two inches in diameter, to the left of the median line, partly above but chiefly below the umbilicus. This area subsequently disappeared, to reappear again in a slightly different locality. Thus, at another time it was above the umbilicus, occupying the triangular space bounded on the right by the median line, the left by the oblique receding border of the ribs, and below by a line drawn transversely through the umbilicus. Between these two extreme situations it occupied others at different times, being generally, however, to the left of the median line until towards the close of life, when, on account of its increased size, it extended somewhat to the right.

The first attack of vomiting occurred, as stated, July 19. The milk diet was continued until July 27, when some solid food was permitted, at his urgent desire, and on August 1 occurred the second attack of copious vomiting. The vomiting was at night, and the undigested food of the morning was rejected. It was repeated on the 6th, 7th, and slightly on the 8th, on the 9th, and on the 13th. From this time vomiting occurred frequently, although the intervals were sometimes surprisingly long, reaching ten days, and the quantities enormous. He frequently insisted that two gallons were thrown up before the attack ceased. The matter vomited was watery, dark in color, containing sometimes food undigested, but often appeared almost like pure water. It never contained blood. Various measures were taken to relieve it,—nitrate of silver, belladonna, carboic acid, bismuth, blisters, the latter with most effect. He was always hungry, and after vomiting would eat solid food in spite of our protestations. His decline was very slow. After November he vomited almost daily, but, notwithstanding this, he went down-stairs daily until within five weeks of his death. The tumor was now very evident over a large area, with the left of the umbilicus as a centre. It pulsated with every contraction of the heart: indeed, this pulsation was evident in August.

The following extracts from my notes give an idea of his condition:

On December 2 I have, "Mr. C. keeps wonderfully well, although his condition is variable. Three days ago he was very much prostrated, having vomited nearly all day. The quantities he vomits are sometimes enormous,—more than a gallon at a time. There has been for some time oedema of the feet, and every time he vomits thus copiously the swelling goes down, as though there was a

transudation from the blood into the stomach during or succeeding the vomiting."

On December 15 I have this note: "Mr. C.'s symptoms slowly grow worse; scarcely a day passes that he does not vomit large quantities. The tumor can now be distinctly felt to the left of the median line above the umbilicus, between this and the free edge of the ribs. The dullness is also extending a little to the right of the median line."

On January 12, 1880, the left leg, which, together with the right, had become very thin, began to swell, and soon acquired enormous dimensions, with pain along the course of the femoral vein. The involvement of the single leg, the pain, the degree of the swelling, forced me to the conclusion that it was of embolic origin. At this time, also, the pain in the region of the tumor became severe, and the skin over the whole epigastric and left hypochondriac regions was evidently raised by the tumor. Under the use of bandages the œdema completely disappeared except in the foot and lower leg, in which it remained, in common with that in the other leg.

On February 18, 1880, we began to administer nutritious enemata, first resorting to milk and milk and egg together, beginning with half a pint morning and evening. We soon added, indeed almost completely substituted, the preparation of pancreas and chopped meat suggested by Professor Mayet, of Lyons, in the *Gazette Hebdomadaire* for November 21, 1879. The pancreas (one-quarter pound) was bruised alone by means of an old-fashioned potato-masher; this was then thoroughly mixed with half a pint of tepid water in which a raw egg was beaten up; this was then placed in a saucepan with one-half pound of finely-chopped lean meat, and placed on the back part of the range at a temperature of 100° F., where it was allowed to remain two hours. The resulting mass was then strained through a cloth, and six ounces by weight (being about one-half) injected; the remainder was injected twelve hours later. Thus an easily-soluble, *partially-digested* substance was injected, unaccompanied by débris of a kind which could irritate the rectum or interfere with absorption. The result, so far as absorption was concerned, was perfect. The functions soon so adjusted themselves that everything injected was retained, and a typically normal passage from the bowels obtained daily.

The nature of the malady was such, however, that no practical advantage was derived from this method of nutrition beyond, perhaps, a short prolongation of life. He grew weaker, and died March 8, 1880. For two days before death his condition was most distressing. If not actually vomiting, he was the victim of an intense and unceasing nausea, and even a short time before his death he insisted upon placing his finger in his fauces to produce vomiting.

The post-mortem examination was made March 10. The body was, of course, extremely emaciated. The abdominal cavity alone was examined. On laying back the abdominal walls, a hard, round tumor, apparently ten centimetres in diameter, was found, occupying the situation so often defined on percussion, just above the umbilicus, mostly to the left, but partially also to the right, of the median line. This, on closer examination, was found to be in the pyloric end of the stomach, projecting altogether into the cavity of the organ. The liver was adherent by its under surface to the corresponding external surface of the stomach, and the portion of the organ thus attached was removed, and is seen with the specimen, but the cancerous growths seemed to be altogether of the mucous or inner surface of the stomach. On laying open the stomach, the pylorus appeared to be occupied by a large white ball eight centimetres in diameter, but perforated in its middle by an opening sufficient to admit the little finger. The stomach itself was enormously dilated, and filled with at least a gallon of thin, slightly-colored fluid. It seemed as though the fluid would never be emptied through the very considerable opening which I made. There appeared to be no ulceration of the stomach, and, although the surface of the tumor was uneven, suggesting the external contour of a cauliflower, there was no ulceration.

Specimens II., III.—The second and third specimens presented, representing carcinoma of the stomach with carcinoma of the liver, the latter probably secondary to the former, were derived from J. B., a male patient aged 50, admitted to the Philadelphia Hospital, March 29, 1880. He was an Irishman, was in the army during the late war (1862), had been variously occupied as a laborer, and immediately before his illness had been working in a large boarding-house. He had been very intemperate, had had *mania a potu* and, while in the army, intermittent fever, but otherwise had enjoyed good health until his present illness. He was not aware of an instance of cancer in his family.

About March 1, 1880, he began to suffer from nausea, and a little later to vomit his food. He himself sought relief by eating less, taking but two meals a day. Burning pain and acid-bitter eructations were constant. On admission he was emaciated, feeble, sallow in appearance, and vomited constantly. He frequently caused himself to vomit at night in order to relieve the burning pain. The matter vomited never contained blood, nor did it exhibit the "coffee-grounds" appearance so often described. All food was retained for some time before it was vomited, as we learned by observations, for he himself said that he vomited immediately after eating. Milk was best retained. He was not jaundiced, had not been, and did not become so

before death. There was pain upon pressure, most marked at a spot two inches below and to the left of the ensiform cartilage, but tenderness existed over the entire region of the stomach and liver. Palpation also revealed an uneven nodular surface in the portion of the epigastrium occupied by the liver, but distinct physical signs of a tumor of the pylorus were wanting. This fact, taken in connection with the man's early statements that he vomited immediately after eating (which our own experience subsequently proved to be erroneous), caused us at first to suspect that there was cancer at the cardiac orifice. Later, however (April 27), the signs of tumor both of the stomach and liver became more distinct. The latter organ enlarged rapidly, although it did not attain the size sometimes reached; the lower border was bounded by a line extending from a point one inch above the crest of the ilium through another two inches above the umbilicus. The peculiar bossillated feel of the cancerous organ was evident through the thin walls of the abdomen. The position of the tumor of the stomach, although not fixed, was that most usual for cancer of the pylorus,—the neighborhood of the umbilicus. There was evident dilatation of the stomach, the greater curvature of which extended almost to the crest of the left ilium.

No treatment was of service. We washed out his stomach with a siphon-tube, but it gave him no relief: indeed, he complained of faintness after the operation. As much as four quarts of water were introduced at a time, with a view to measuring the degree of dilatation. Enemata of milk were used, but failed to prolong his life, and he died May 11, 1880.

The autopsy was made twelve hours after death, by my resident physician, Dr. William S. Long, to whom I am also indebted for the notes whence this history is taken. Emaciation was extreme, the abdomen scaphoid. Above the umbilicus were evident through the thin abdominal walls several slight prominences, and a ridge extending from the crest of the right ilium to the floating ribs of the other side,—the lower border of the liver,—as was confirmed on laying back the abdominal walls. The liver weighed five pounds fifteen ounces, and was a beautiful illustration of disseminated nodular cancer of that organ. Scattered over the upper and anterior surface were no less than thirty-five nodules, ranging from two millimetres to twelve centimetres in diameter. They were opaque-white, and in almost every instance typically umbilicated. It was these which could be seen and felt through the abdominal walls. The neighboring lymphatic glands were somewhat enlarged, but there were no adhesions between the liver and any other abdominal organ.

The stomach was only partially visible below the edge of the liver. The pylorus lay be-

hind the liver and in the median line, and was the seat of the spherical growth exhibited, somewhat smaller, but in other respects similar to that of the first specimen. The stomach was dilated, and contained about a pint of partially-digested food of the consistence of gruel. The pyloric orifice was much constricted.

The kidneys were smaller than usual, but the capsule was easily stripped off. On section, the organs appeared somewhat fatty to gross examination.

The heart was small, but its valves were normal.

The brain weighed forty-one ounces. There was an area of superficial softening three metres across at the base of the left frontal convolution, and a similar one at the base of the left sphenoidal convolution.

Specimen IV.—The fourth specimen, also of carcinoma of the stomach, was taken from a German baker admitted to the Philadelphia Hospital, December 11, 1879. His symptoms appeared about ten months before admission, and were described by himself as a "choking sensation" at the pit of the stomach when taking food, which he immediately vomited, whether liquid or solid. This condition was not, however, suddenly acquired, but gradually, and he was able to work for some time after the first symptoms appeared. He emaciated greatly, and on admission he was wan and thoroughly cachectic in appearance. A few days after admission his feet began to swell, but, on examination, his urine was found normal. This swelling subsided when he was put to bed, but immediately recurred on rising. A liquid diet was well retained, but he constantly complained of a lump in the epigastrium. Physical examination discovered no signs of a tumor, while an oesophageal bougie passed with but slight resistance at the cardiac orifice. Much relief to his distressing sensations was apparently afforded by a powder containing gr. viii of saccharated pepsin, gr. v of subnitrate of bismuth, and gr. $\frac{1}{2}$ of calomel, but he gradually failed, and died March 16, 1880, while I was temporarily off duty.

The post-mortem examination discovered the stomach now presented. The members of the Society cannot but be impressed by the contrast it bears to the other specimens exhibited this evening. The extensive ragged ulcer, with sloughing floor, extending over nearly one-half of the surface of the organ, which is itself reduced rather than increased in size, is a conspicuous feature. This reduction in the size of the stomach, accompanied by a reduction in its cavity, is ascribed to a contraction and retraction of the submucous tissue of the organ in the vicinity of the carcinomatous growth, the exact histo-genesis of which is not thoroughly understood, although Rindfleisch*

* Sydenham Society's Transl. of 1872, vol. i. p. 462.

says he feels convinced that the pre-existing tissue is really in some sort used up, and that the scirrhous growth represents the quantity of connective tissue so employed.

As to the histology of these specimens, the first two are examples of hard cancer of the pylorus, the nodules in the liver of the second case being also of the same nature. The third specimen had been so carelessly kept before it fell into my hands that it was impossible to make out its minute structure; from the macroscopic appearances, however, the specimen is probably one of soft cancer.

Dr. HENRY said that the question of the disease being leukaemia, which had arisen in an early stage of the history of this case, and had been decided affirmatively, would have been decided negatively by a count of the blood-cells. The appearance of an increase in the white cells was deceptive. They might have been absolutely diminished in number and relatively increased. In a recent examination of blood which he had made, Dr. Henry had experienced the same difficulty in obtaining a drop of blood from the finger-pulp. The drop was exceedingly pale, and when drawn into the fine capillary pipette, used in the examination, it resembled serum. The case was one of supposed pernicious anaemia, but had been supposed to be leukaemia by a previous observer, who had examined the blood by placing a drop of blood on a glass slide. The white cells were *relatively* increased. An examination with the haemacytometer showed an actual diminution in the number of the white cells, and by far the smallest number of red cells Dr. Henry had ever encountered, their number per cubic millimetre being only five hundred and twenty-five thousand, the normal number being about five millions. At the time of the examination of this case Dr. Henry had under his care a case of cancer of the pylorus, in which, for purposes of comparison with the former, he counted the blood-cells. The patient was a female between fifty and sixty years of age. She was excessively pallid and greatly emaciated, the skin being wrinkled from loss of fat in various parts of the body, especially over the abdominal walls. Food was seldom retained for any great length of time, vomiting being of daily occurrence. Notwithstanding, the blood-cells were much more numerous than in the case of pernicious anaemia, more than three times as numerous. A count showed one million seven hundred and fifteen thousand per cubic millimetre, and also a slight diminution of the white. If examined in the ordinary coarse manner the white cells would have seemed to be increased in number in this case also. The object of these remarks is to show the impossibility of making a correct diagnosis in many cases of blood disease without the use of the haemacytometer.

(To be continued.)

PHILADELPHIA ACADEMY OF SURGERY.

MEETING OF NOVEMBER 3, 1879.

ADDINELL HEWSON, M.D., temporary PRESIDENT, in the chair.

RESECTION OF THE HEAD OF THE HUMERUS FOR GUNSHOT WOUND.

DR. T. G. MORTON presented a specimen of comminuted fracture of the head of the humerus, with a part of the shaft of the bone, which he had resected on account of a gunshot wound.

Michael T., a miner, aged 21, was admitted into the Pennsylvania Hospital, October 3, 1879. He had been hunting the day before, and when getting over a fence the hammer of the gun caught in the rail and the entire contents were discharged into his left shoulder. Hemorrhage was profuse, but he walked to his home (some two and a half miles), where the wound was packed and morphia was administered. The following morning he drove three miles over a rough road to the depot, and came to the hospital, arriving about 3 P.M. There had been considerable oozing from the wound since the accident, so that when received he was very pale; pulse small, weak, and rapid; temperature, 100½°. A little to the inside of the left shoulder, and on a line with the middle of the joint, there was a wound about the size of a silver dollar, the direction of which was upward, backward, and outward. The finger carried in came at once in contact with comminuted bone, and it was evident that the charge had passed in as a mass, and had separated the head of the humerus from the shaft. There was not a single shot through the other side, but the mass of No. 5 shot lodged underneath the integument.

An L-shaped incision was made, which reached from the outer edge of the gunshot wound to the middle of the deltoid muscle. The longer arm extended down the arm in a line with the humerus about four and a half inches. The tissues were dissected from the shaft of the humerus, which was divided about two inches below its anatomical neck. Three vessels required ligation in the posterior flap. The head of the bone was found broken into four large and several smaller pieces, all of which were removed. A piece of shirt, some wad, and a large number of No. 5 shot were also removed. The long head of the biceps flexor was intact. The L-shaped incision was converted into a T by prolonging the short arm, to allow drainage to occur at this point, as the tissues surrounding were much lacerated. A tent was placed from cavity of joint to outer arm of T-incision, and the wound was dressed with carbolic charpie, over which a towel was placed and several loose turns of roller applied.

December 1, 1879.—Patient made an excellent recovery, not having experienced a bad symptom.

MODIFIED ANEURISM-NEEDLE.

Dr. J. H. Packard presented a form of aneurism-needle which he thought could be used with advantage in dealing with deep-seated arteries, such as the iliacs or sub-clavian. It consisted simply of a strongly-curved blunt needle, roughened at the tip so as to be readily seized with a pair of forceps. The idea was to grasp it, armed with a ligature, in a well-constructed pair of catch-dressing forceps at any desired angle; to insinuate it under the artery; to grasp it with another pair of forceps, and, disengaging the hold of the first pair, to draw it through.

No inconsiderable difficulty is often found, in using the ordinary aneurism-needle set in a handle, in getting hold of the ligature so as to draw it through. Dr. Packard had recently experienced this in ligating the external iliac, and had seen it occur to other operators in the case of this and other arteries. A well-made forceps or needle-holder would enable the surgeon to use such a needle as the one now exhibited with perfect ease, and with all the force and steadiness necessary.

This needle had the additional advantage of being readily carried in the pocket-case, so as to be at hand in case of emergency, which could not be done with the double-curved aneurism-needle set in a handle.

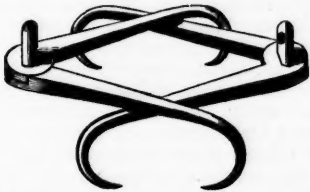
Dr. R. J. Levis called attention to the fact that a similar needle had been devised by Physick for ligating deeply-seated arteries.

MEETING OF FEBRUARY 2, 1880.

S. D. GROSS, M.D., PRESIDENT, in the chair.

A CASE OF FRACTURE OF THE PATELLA, SHOWING THE USE OF A MODIFICATION OF MALGAIGNE'S HOOKS.

Dr. T. G. Morton brought before the Academy a patient who three weeks previously had sustained a transverse fracture of the patella, and who was undergoing treatment by means of the modified Malgaigne hook devised by Dr. Morton (see figure). The



hooks had been applied ten days previously (while the patient was etherized), and now held the fragments in firm apposition without causing any trouble. The apparatus should always be adjusted under ether, as considerable pain is produced at the time the points are inserted; and it is well to wait a week or more after the accident before applying the hooks, in order that the irritation produced

by the injury and fracture may subside. Before the patient recovers consciousness, after the fragments have been drawn together, a straight posterior splint should be applied, to prevent flexion of the knee. During or at the end of the third week the hooks generally become more or less loosened, and may then be removed; the wounds caused by the points of the instrument close at once. Occasionally it has been found necessary to tighten the screw, consequent upon subsidence of swelling. Subsequent to the removal of the hooks the limb should be kept immovable in a sili-cate dressing for several weeks.

The hooks are so arranged that after the points are inserted into the tendinous tissue over the bone the upper hooks are drawn down towards the lower ones, which do not move. The points are not believed to penetrate deeply enough to be inserted into the bone itself. Dr. Morton and his colleague, Dr. Levis, have treated, at the Pennsylvania Hospital, with various forms of hooks, a large number of cases, and have had excellent results. He had only seen one instance in which the points seemed to produce irritation. In that case it had been necessary to aspirate the joint on two occasions during the preliminary treatment before the hooks were applied, and he therefore removed them when he found that fluid had again collected, soon after the apparatus was applied.

This form of dealing with fractured patella gives very close union. Many of the ordinary appliances used in the treatment of fracture of the patella, consisting of bandages and straps, etc., are believed to interfere with the nutrition of the patella, and thus increase the chances of non-union.

Dr. R. J. Levis highly approved of this method of dealing with transverse fractures of the patella, and had frequently employed it.

Dr. John B. Roberts mentioned a case where an abscess over the patella occurred during the treatment of a broken patella by Malgaigne's method. The knee had been greatly contused at the time of the receipt of injury, which might have been the cause of the sup-puration. Another case was referred to in which the bone was subsequently accidentally refractured, though the union was perfect at the time of dismissal. This, of course, might occur with any fracture.

AVULSION OF THE SCALP.

A large portion of scalp torn from a girl's head by machinery was shown by Dr. T. G. Morton. The patient had frequently allowed a revolving shaft driven by steam to curl her hair, but on the last occasion had permitted too much of the hair to become encircled around the shaft. She had been thrown around in a circle several times, when seized by a man and held. As a result the scalp was torn from the head. The line of wound began at the right ear, crossed the face, sepa-

rating the tissues between the eyebrows and margins of the lids, and continued through the left ear down the neck, and, finally, upward in an oblique direction to the right ear. In addition, there was a piece of scalp as large as the palm of the hand torn out from over the vertex. The scalp was carefully stitched in position, but sphacelation of tissue rapidly occurred. Death took place in thirteen hours. It is probable that some brain injury coexisted.

BROMIDE OF ETHYL.

Dr. R. J. Levis presented two specimens of bromide of ethyl which he had employed in producing anæsthesia, and stated that there was a difference in the quality, as one possessed an offensive odor which was absent in the other. He asserted that he had elsewhere recorded his experience with this anæsthetic agent.

MEETING OF MARCH 1, 1880.

HYDROCELE.

Dr. Samuel Ashhurst mentioned a case of hydrocele in which the sac had, after tapping, refilled in about two weeks. The fluid drawn was clear at first, but afterwards a little blood had escaped. It seemed to him that this was a more rapid reaccumulation than usual.

Other Fellows, however, referred to cases where there had been filling of the sac in from seven to ten days.

In referring to the radical treatment by injection of irritating fluids, Dr. D. H. Agnew stated that he had had an opportunity to dissect a case of hydrocele about four months after cure by injection. The tunica vaginalis had its surface covered with lymph, looking like the pile of velvet, but there was no obliteration of the cavity. He also mentioned an instance of scrotal disease which came to him for treatment, in which a previous attendant had performed tapping and injection of iodine, though there was no fluid. The inflammation produced by the iodine thrust into the subcutaneous tissue caused the scrotum to present a fungating mass resembling cancer.

JOHN B. ROBERTS,
Recorder.

GLEANINGS FROM EXCHANGES.

A CASE OF ACUTE HYSTERICAL VOMITING OF TEN MONTHS' DURATION CAUSED BY DISPLACEMENT OF THE UTERUS.—The case was related by Dr. Graily Hewitt at a recent meeting of the Clinical Society (*Med. Press and Circular*, June 2), as a typical and extreme instance of an affection not uncommon in gynecological practice. The patient was a young lady, æt. 20, under Dr. Graily Hewitt's care at the All Saints' Institution for Ladies Suffering from Illness, 127 Gower Street. She had always been very active, but not accustomed to take food in fair quantity,—much the

reverse. Menstruation before onset of illness irregular. *Present illness* dated from February, 1879, ten months prior to admission. Since that date there had been a gradually-increasing severe and constant sickness. She had for some time been unable to retain food in the stomach. Took only a small quantity of koumiss. Menstruation had entirely ceased for ten months. There was very extensive emaciation. She believed she had lost four stones in weight during the past year. Sleep—none; all attempts to walk produced exaggeration of symptoms; weakness very great. Previous medical attendant had, it was stated, surmised existence of uterine displacement. *Condition on Admission*, December, 1879.—Constantly sick. Pulse very feeble. Commencing bed-sore over sacrum. Uterus low down in pelvis, much swollen, and in a condition of acute anteversion, with considerable flexion; uterus wide from side to side. The sickness was considered due to this displacement. Later on it was elicited that just before sickness began patient had jumped from a height of six feet, and felt sick after it. Probably the uterus was displaced by this leap. A friend of the patient's took the same leap, and was also made sick, but laid up for it and recovered, whereas this patient did not. *Treatment*.—Nutrient enemata thrice daily. Patient to be placed in knee-and-elbow position every hour for two or three minutes. At end of week, improvement; sound now used and uterus elevated; slight temporary increase of sickness, then much improvement. Cradle pessary at end of fortnight introduced, and since retained undisturbed. After this time food began to be tolerated by stomach; sickness entirely gone at end of third week. Afterwards improvement rapid; appetite, sleep, and general condition all good. Pulse changed from 50 to 80. After fourth week patient literally ravenous. Seven weeks after admission discharged. Weight increased two stones during stay in institution. Menstruation subsequently returned. General health and strength and activity quite restored. The uterus was weak at the time of the leap. It became severely displaced. The displacement set up in a reflex way sickness. Reposition of the uterus at once relieved the sickness.

TREATMENT OF STRANGULATED HERNIA WITHOUT OPERATION.—At the late meeting of the Illinois State Medical Society (*N. Y. Med. Record*, vol. i., 1880, p. 673), Dr. Hills spoke of the treatment of strangulated hernia by stretching upward with the thumb the ring at the point of obstruction and enlarging it,—the thumb carrying before it, of course, the integument and subcutaneous tissue. He was himself the author of this treatment, and had used it in over a hundred cases successfully, and no need had been found for the cutting operation. He thought operations on strangulated hernia need rarely or never be made.

TONGA, A NEW REMEDY FOR NEURALGIA.—Under the name of "tonga," says the *British Medical Journal* (vol. i., 1880, p. 929), a new remedy for neuralgia has recently attracted a good deal of attention in the medical profession. Some months ago Mr. Ryder, a gentleman residing in Fiji, brought home a drug used by the Fijians in cases of this malady (*London Medical Record*, April 15). It was brought in the form of small, broken fragments, consisting of a mixture of woody fibre, bark, and leaves, broken up into such small pieces as to make it almost impossible to identify any portion botanically. This broken vegetable matter was tied up into spherical bundles, each about the size of an orange, covered with a wrapper consisting of the fibrous ensheathing base of the leaves of the coconut-palm.

Notwithstanding the broken state of the drug, Mr. G. M. Holmes, the curator of the museum of the Pharmaceutical Society, has (*Pharmaceutical Journal*), after careful examination, arrived at the conclusion that the principal component part of the contents of the bags is the stem of an aroidous plant, a species of raphidiphora, probably raphidiphora vitiensis. The mode of preparing a draught of tonga for use is extremely simple. The bundle while still closed is to be allowed to soak in cold water for ten minutes; the liquid is then to be squeezed out into a tumbler, and a claret-glass of the infusion taken three times a day about half an hour before each meal. The bundle is to be dried and hung up in a dry place, and can be used several times for a year.

Experiments made in its administration by Dr. Sydney Ringer and Dr. Murrell in eight cases proved successful: in six it acted very promptly, one was much improved, the other was not affected. The peculiarity of the action of the drug is its rapid action on the nerves; it does not affect the pupil when topically applied, or increase or lessen either perspiration or saliva.

TRUE AND FALSE KELOID.—A committee of the London Pathological Society (*Lancet*, vol. i., 1880, p. 952), appointed to investigate a case of keloid presented to that Society, report, as the result of varied observations, that the great majority of cases of keloid met with clinically originate in scars. The cases reported as spontaneous cannot be disproved, but it is possible that some of them, like other recorded cases, may have originated in minute scars; and the committee purpose, therefore, to regard it as a disease of scar-tissue, and to discard altogether such terms as true and false keloid. They are, however, of opinion that it is possible that there are conditions which may morphologically be allied to keloid, and which are more deeply placed. It does not appear that any marked differences can be maintained between keloid proper and syphilitic keloid. When present in syphilitic

scars, it is only less well pronounced than when occurring in simple scars.

Other observations follow upon the duration of keloid, and some interesting cases not hitherto recorded are presented in the report. They conclude by referring to the pain of keloid, the manner of its appearance, and the time of life at which it most often appears.

TREATMENT OF PARAPHIMOSIS.—Bordinet treats paraphimosis as follows. He takes a hair-pin, presses the points together somewhat, and inserts the curved end under the strangulation back of the glans. He next applies a second and a third at intervals around the glans; then, drawing the prepuce forward, reduces it with great facility, the skin gliding over the three bridges without obstruction.

BROMIDE OF POTASSIUM IN DOVER'S POWDERS.—Dr. Chisholm, in the *Ohio Medical Recorder*, advocates the substitution of the bromide of potassium for the sulphate in Dover's powder, and states that the efficiency of the powder is greatly increased by the substitution. —*Chicago Medical Gazette*.

ARSENIC.—James Startin (*Lancet*, December 27, 1879) reports a case where Donovan's solution produced a vesicular and bullous eruption over the hands, attended with considerable itching and much perspiration.

MISCELLANY.

EARLY VIABILITY.—In the *Archives de Toxicologie*, Professor Bailly reports the remarkable case of a viable infant at the age of 6 months and 20 days. The mother had a miscarriage at the beginning of 1877, after which menstruation became regular, taking place for the last time from July 3 to 9, 1877. On January 28, 1878, she gave birth to a male infant. This was wrapped in wadding and kept in an artificial temperature. It was fed at first by diluted cow's milk, and afterwards with its mother's milk, being unable to suck at first. At its birth the ring of its father passed over its foot to near the knee, and on the thirteenth day the infant weighed 1250 grammes. At the end of a week it began to take the breast. At the date of this report, December, 1879, the child had sixteen teeth, weighed ten kilograms, walked with agility, could pronounce some words, and was as intelligent as other children at that age.—*Med. Press and Circular*.

SAVING TIME.—Dr. Clemenceau, the eminent French physician and member of the Legislature, is remarkable for his quickness in the despatch of business. Two men entered his consulting-room simultaneously the other day. The first, in reply to "What is the matter?" said he had trouble in the chest, and was ordered to take off his shirt. While prescribing, the doctor ordered the other vis-

itor in, and said, "Just take your shirt off, too; it will save time." He immediately did so, and by the time the doctor had written the prescription for the first man and received his fee he was stripped to the waist. "You are suffering from pain in the chest, too, are you not?" "Well, no," said patient No. 2; "I come to beg you would recommend me for a place in the post-office."

MEAT-BREAD.—Yet another invention, says M. de Parville, in the *Journal des Débats*, is meat-bread. Usually, when we eat we take the trouble of digesting at the same time our bread and our meat. Some one has conceived the idea of saving all this double work. M. Scheurer-Kestner has found the means of compelling the bread to previously digest the meat; that is so much gain for the stomach. And then what a simplification! instead of concerning oneself with providing beefsteaks, chops, etc., there is nothing to do but provide the bread. The method is expeditious, and will be of importance to the soldier in campaign, the hunter, and the traveller.

SALICYLIC ACID PLUGS FOR ARMY USE.—In case of the mobilization of the German army, each soldier receives two salicylic acid plugs of different dimensions, which he may, if wounded, himself introduce into the wound. These plugs consist of a piece of gauze of fifteen to sixteen square centimetres, in which is rolled one or two grammes of salicylized wadding. They are made pretty loose, so as to take any desired form. The salicylized wadding is prepared thus. A solution is made of one hundred and ten grammes of salicylic acid in three and a half to four litres of alcohol at 95°, and forty grammes of castor-oil or glycerin added. Dry carded cotton is immersed in the mixture till thoroughly impregnated; then it is hung up to dry in a heated room.

POST-MORTEM EXAMINATION OF THE STOMACH.—Dr. Damaschino lately described to the Biological Society of Paris a method of preserving the stomach after death. It is almost impossible to make a necropsy within twenty-four hours after death, and during that time the stomach undergoes changes due to the action of the gastric juice and to the decomposition of food. He thinks that this can be obviated by filling the stomach with alcohol of eighty-six per cent. one or two hours after death. Besides its antiseptic properties, the alcohol hardens the tissues and renders them much more advantageous for microscopic investigations. The mucous membrane is rendered a little paler in color.

AN ACTIVE OLD MAN.—Professor Chevreul, the distinguished chemist, recently began his regular annual course on chemistry in the Paris Museum of Natural History. The old gentleman is in his ninety-first year, and this is the fiftieth year of his professorate.

CONCENTRATED SOLUTION OF SULPHUROUS ACID.—Professor Gamgee says that cold alco-

hol will dissolve three hundred times its own volume of sulphurous acid gas, and a fluid possessing such powers of concentration cannot but be as efficient as it is portable and convenient.

MESSRS. MACMILLAN & COMPANY announce as in preparation for early issue in the fall a treatise on "Food for Invalids," by J. Milner Fothergill, M.D., of London, and Professor H. C. Wood, M.D., of Philadelphia.

NOTES AND QUERIES.

AMERICAN DERMATOLOGICAL ASSOCIATION.

At the fourth annual meeting of the American Dermatological Association, which will be held at the Ocean House, Newport, R.I., on the 31st of August and the 1st and 2d of September, 1880, the following papers will be presented: Tumors of the Skin, by Dr. C. Heitzmann; Papilloma Cutis, by Dr. W. A. Hardaway; Medicinal Eruptions, by Dr. A. Van Harlingen; Ainhum (for Dr. Da Silva Lima, of Bahia), by Dr. J. N. Hyde; Date of Evolution of the Erythematous Syphilide, by Dr. R. W. Taylor; Treatment of Eczema of the Hands, by Dr. L. D. Bulkley; Experiments on Epilation, by Dr. C. Heitzmann; Kerion Stage of Tinea Tonsurans, by Dr. I. E. Atkinson; Pityriasis Maculata et Circinata, by Dr. L. A. Dühring; Case of Phlyctenular Eruption of the Face and Hands, by Dr. A. Van Harlingen; Case of Lichen Planus first appearing on the Penis, by Dr. L. D. Bulkley; Scleroderma, by Dr. J. E. Graham; Herpes Progenitalis, by Dr. F. B. Greenough; Notes on Xanthelasma Palpebrarum, by Dr. R. W. Taylor.

PROFESSOR H. C. WOOD,

EDITOR *Medical Times*:

DEAR SIR,—Please to correct an error in my article on "*Hygienic and Therapeutic Relations of House Plants*," which appeared in your journal bearing date May 8, 1880, viz. (page 400), instead of "one and a half ounces (by weight) of watery vapor per square foot of leaf-surface for twelve diurnal hours of clear weather" read "one and a quarter ounces per square foot of leaf-surface," etc.

I remain, very respectfully, etc.,
J. M. ANDERS.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY FROM JULY 25 TO AUGUST 7, 1880.

WEBSTER, WARREN, MAJOR AND SURGEON.—His leave of absence extended one month, provided he furnishes satisfactory medical attendance during his absence. S. O. 124, Department of the East, July 27, 1880.

KING, WILLIAM H., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for an extension of three months, on Surgeon's certificate of disability. S. O. 87, Department of Dakota, July 21, 1880.

COMEGYS, E. T., CAPTAIN AND ASSISTANT-SURGEON.—So much of S. O. 135, c. s., from these Headquarters, granting him leave of absence on Surgeon's certificate of disability, is revoked. S. O. 144, Department of Texas, July 19, 1880.

BENHAM, R. B., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Having reported at these Headquarters, is assigned to duty (temporary) at Fort Snelling, Minn. S. O. 87, c. s., Department of Dakota.

GORGAS, W. C., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—To report to the Commanding Officer, Fort Clark, Texas, for duty. S. O. 147, Department of Texas, July 23, 1880.

STRONG, NORTON, FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to temporary duty at Fort Douglas, Utah. S. O. No. 70, Headquarters, Department of the Platte, July 31, 1880.